RISK MANAGEMENT

for PEO

National Security Personnel System

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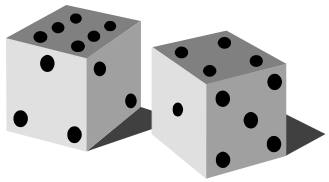
RISK MANAGEMENT



BOTTOM LINE UP FRONT

- **Essential Part of Program Management**
- **Includes both Opportunities & Risk Events**
- **Risk Events must be Identified, Assessed, Handled & Monitored**
- **Risk Events Are Classified As LOW, MODERATE, or HIGH Depending on PROBABILITY of Occurrence and SEVERITY OF CONSEQUENCES**
- **High & Moderate Risks Must be Handled**

Risk Management must be integrated into the organization's routine processes

Risk Management

- Two Components – Opportunities & Risk Event

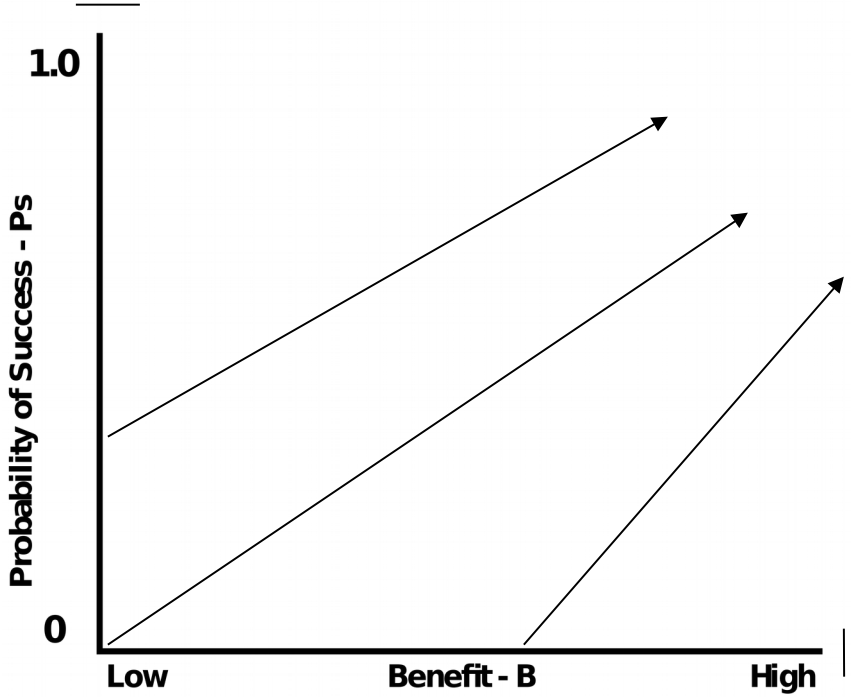
- Both have probabilities and outcomes

- Executive Level = balanced view, big picture, risk-based strategic planning and decisions

- "Worker Bees" main tasks = identifying and handling (mitigating) risk events

Managing Risk

"Opportunities are Good!"



Opportunity:

1. **A favorable or advantageous combination or circumstances; suitable occasion or time.**
2. **A chance for progression and advancement.**

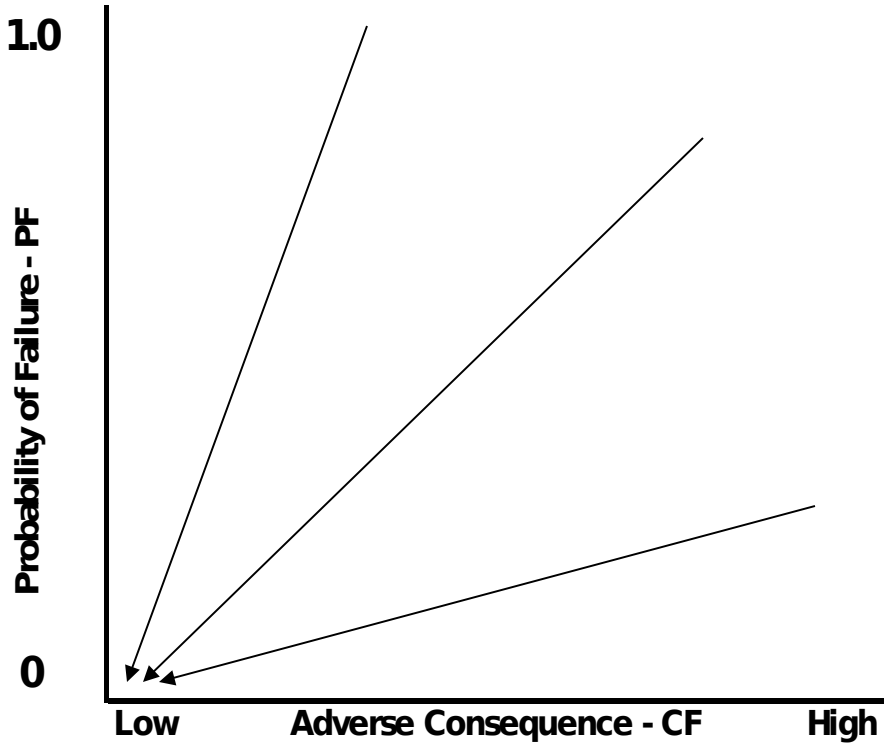
Considerations:

1. **Is the opportunity beneficial?**
2. **Is the opportunity doable?**
3. **Is the benefit worth the cost and risk?**

Manage so as to enhance the high benefit and high probability!

Managing Risk

"Risks are bad!"



Risk:

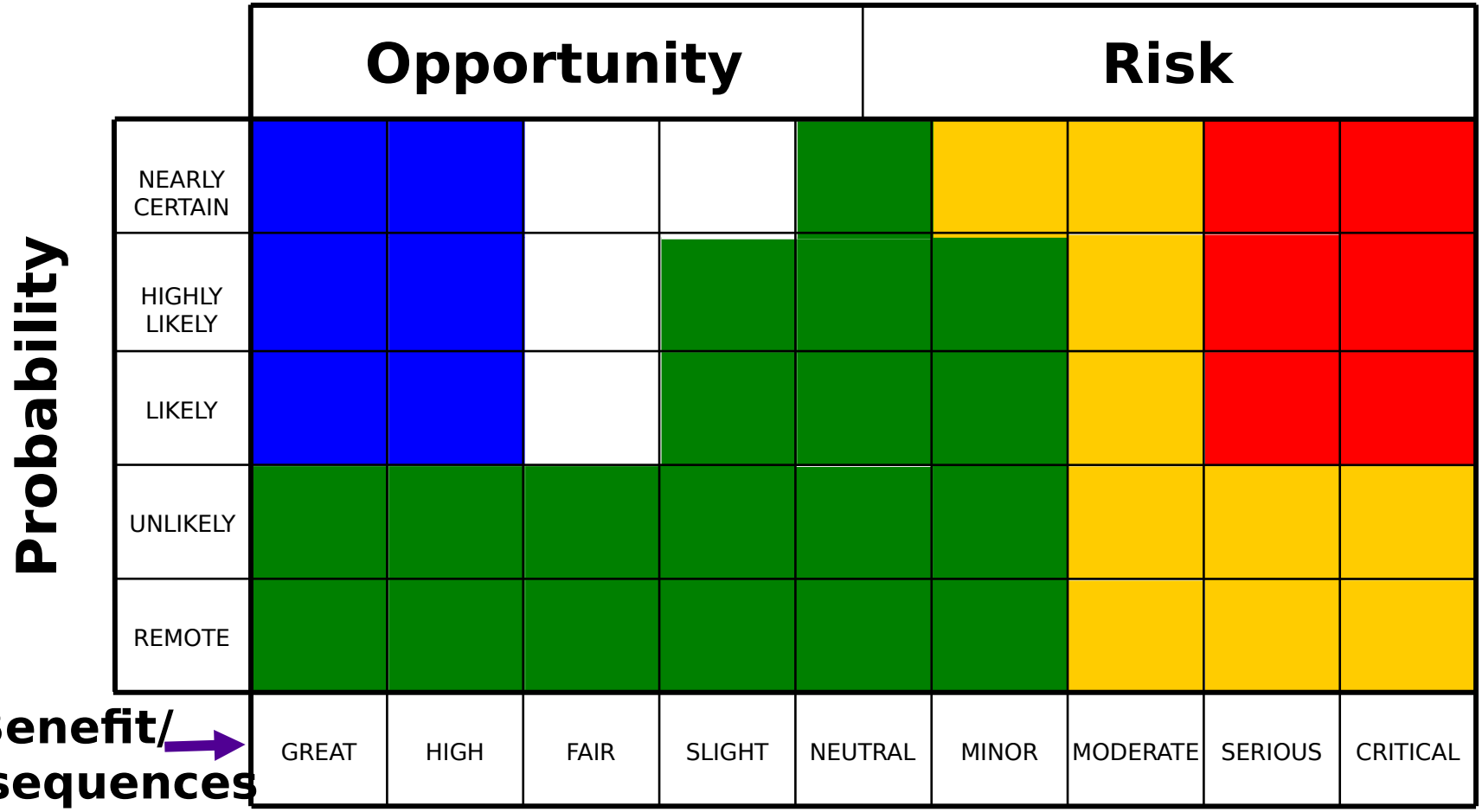
1. The possibility of suffering harm or loss.
   (potential problem)
2. A factor, element, or course involving uncertain danger.

Considerations:

1. What can be done to eliminate or reduce the risk?
2. What other areas can potentially be affected by the risk?
3. Is the risk worth the benefit?

Manage so as to move probability and consequence (impact) toward zero!

OPPORTUNITIES & RISKS



& Blue ratings justify major investment of resources & effort

w & White ratings justify secondary consideration

een ratings are low priority (track but leave alone)

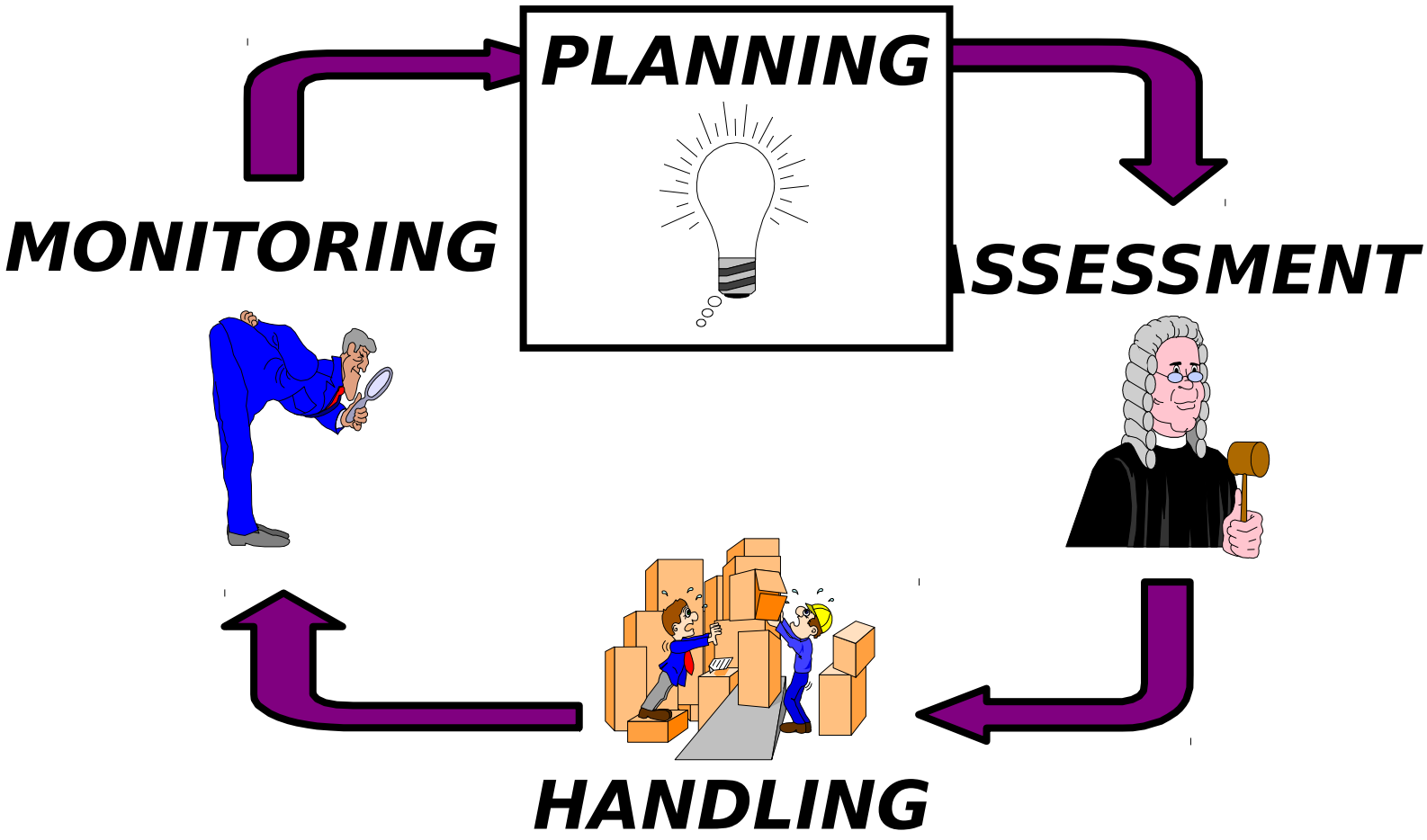
Probability = odds of achieving opportunity or risk occurring

ACQUISITION RISK -- DEFINITION

- **A Measure of Potential Inability to Achieve Defined Program Cost / Schedule / Performance GOALS**

- **Each Risk (Risk Event) Has 2 Components:**
  PROBABILITY -- Event Will Occur
  CONSEQUENCES -- Adverse Impact to Program

RISK MANAGEMENT MODEL*



* DoD/DAU Risk Guidebook

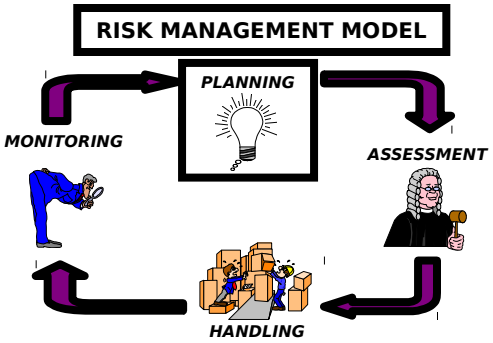
RISK MANAGEMENT IN INTEGRATED PRODUCT & PROCESS (IPPD) ENVIRONMENT

- Empowerment -

"The team should be given the authority, responsibility, & resources to manage its product & its *risk* commensurate with the team's capabilities.

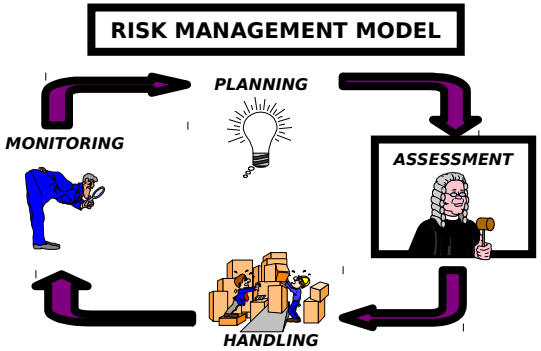
- **The authority of team members needs to be defined & understood by the individual team members.**
- **The team should accept responsibility & be held accountable for the results of its efforts."**

- DoD IPPD Guide



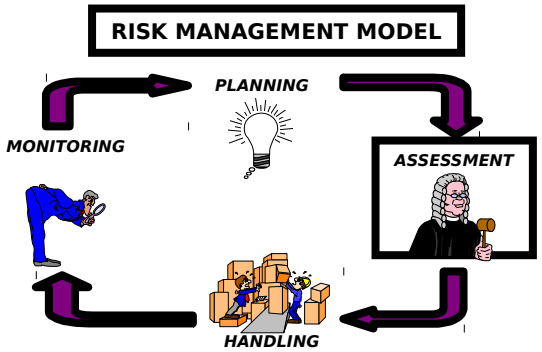
RISK PLANNING

- **Develop an Organized, Comprehensive, & Iterative Approach for an Effective Acquisition Risk Management Program**
- **Train ALL IPT Members in Risk Management Processes**
- **Assign Responsibility and Authority to Team Members at appropriate levels**
- **Create a Risk Coordinator to look across entire program**
- **Develop a Management Information System (MIS)**
- **Draft a Risk Management Plan (Documentation)**
- **Finalize the plan and implement across the**



RISK ASSESSMENT

- **Identification** of Risk Events
- **Analysis** of Probability & Consequence
- **Priority** of Risk Events for Handling

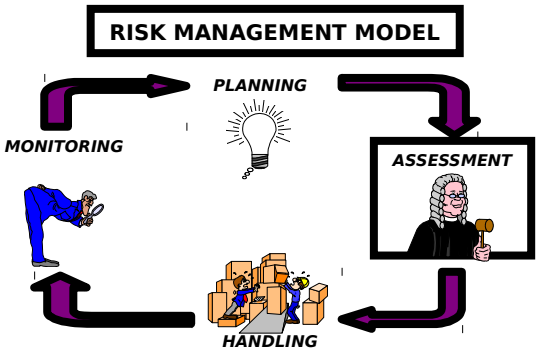


RISK ASSESSMENT

(Sub-process: Identification)

- **What Are the Risk Events in the Program?**
  - **Known / Knowns**
  - **Known / Unknowns**
  - **Unknown / Unknowns**
- **Where Are Risk Events Located in the Program?**
  - **Requirements, Technology, Design, T&E, M&S, Cost,**

    Schedule, etc.
- **Examine Sources/Areas of Risk to Determine Risk Events**

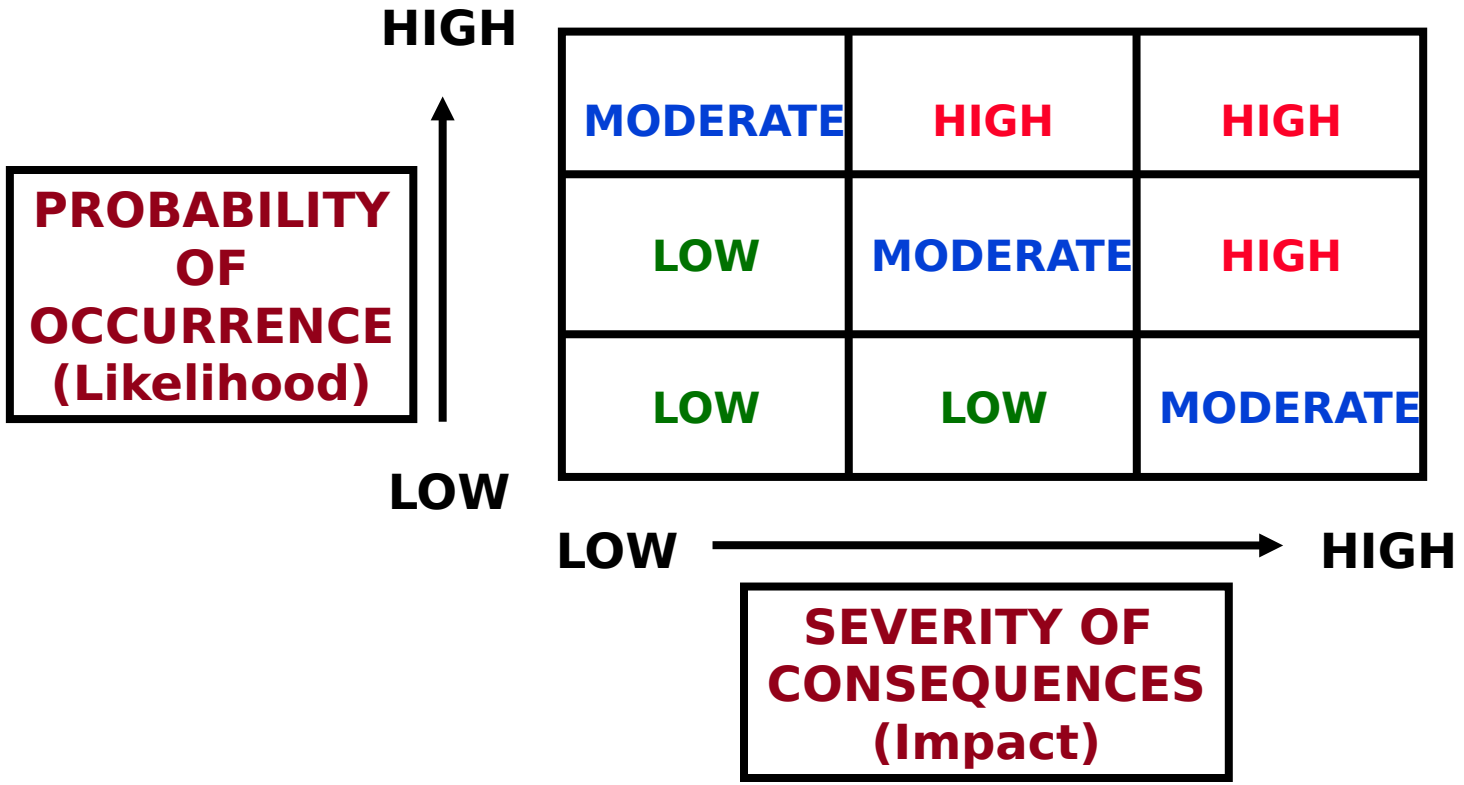


RISK ASSESSMENT

(Sub-process: Analysis)

- Description of Risk Event (What Could Go Wrong?)
- Isolate the Cause of Risk Event
- Determine the Probability & Impact of Risk Event
- Use Prob & Impact to determine High, Medium, & Low Risk Ratings?
  - Apply Generic Risk Assessment Matrix to Rate/Prioritize Risk Events
  - Tailor Prob, Impact metrics/axes to the Product or Process
  - Measure Risk Impact on Cost, Schedule,

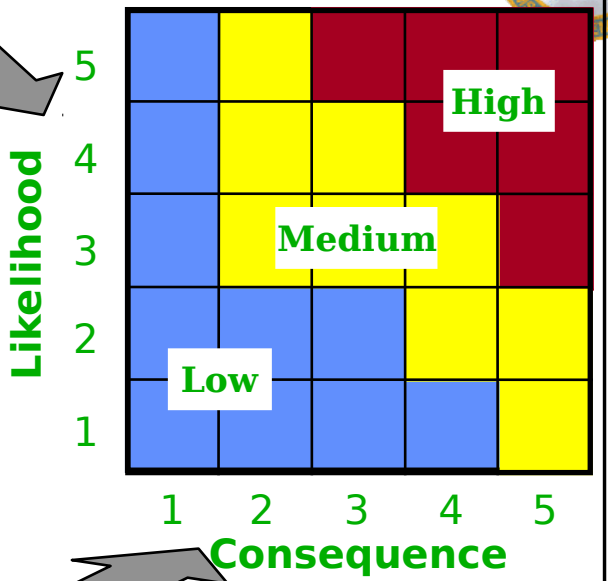
GENERIC RISK ASSESSMENT MATRIX



F/A-18 Program Risk Analysis

Likelihood

What Is the Likelihood the Risk Will Happen?		
Level		Your Approach and Processes...
1	Not Likely: ...	Will effectively avoid or mitigate this risk based on standard practices
2	Low Likelihood: ...	Have usually mitigated this type of risk with minimal oversight in similar cases
3	Likely: ...	May mitigate this risk, but workarounds will be required
4	Highly Likely: ...	Cannot mitigate this risk, but a different approach might
5	Near Certainty: ...	Cannot mitigate this type of risk; no known processes or workarounds are available



Consequence

Given that risk is realized, what would be the magnitude of the impact?			
Level	Technical	Schedule	Cost
1	Minimal or no impact	Minimal or no impact	Minimal or no impact
2	Minor perf shortfall, same approach retained	Additional activities required; able to meet key dates	Budget increase or unit production cost increase <1%
3	Mod perf shortfall, but workarounds available	Minor schedule slip; will miss need date	Budget increase or unit production cost increase <5%
4	Unacceptable, but workarounds available	Program critical path affected	Budget increase or unit production cost increase <10%
5	Unacceptable; no alternatives exist	Cannot achieve key program milestone	Budget increase or production cost increase >10%

Questions about Risk Management?
Call a member of the Risk Mgmt Team

Willie Smith	703-604-2210 x7418
John Hayn	314-234-9738
Ruben Garcia	314-233-6315
Jim Warren	314-234-8754
Ron Morris	310-332-8050
Vic Santos	617-594-5930
Pam Barber	703-413-7264

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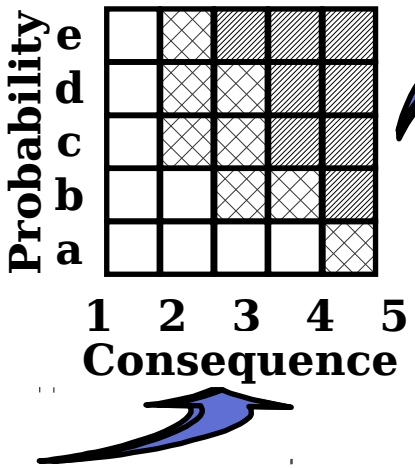
RISK ASSESSMENT

Questions about Risk Management?

Call a Member of the Process Integration Team for Risk.

ASSESSMENT GUIDE



***Probability*:**

Level	What Is The Probability The Risk Will Happen?
a	Remote
b	Unlikely
c	Likely
d	Highly Likely
e	Near Certainty

***Consequence*:** Given The Risk is Realized, What is the Magnitude of the Impact?

Level	Technical and/or Performance	Cost and/or Schedule	Impact on Other Teams
1	Minimal or No Impact	Minimal or No Impact	None
2	Acceptable with Some Reduction in Margin	< 5% Additional Resources Required. Some Impact to Dates	Able to Meet Need
3	Acceptable with Significant Reduction in Margin	5 - 7% Minor Slip in Key Milestone; Moderate Impact	Not Able to Meet Need Dates
4	Acceptable, No Remaining Margin	> 7 - 10% Major Slip in Key Milestone or Critical Path Impacted	Major Impact

RISK ASSESSMENT

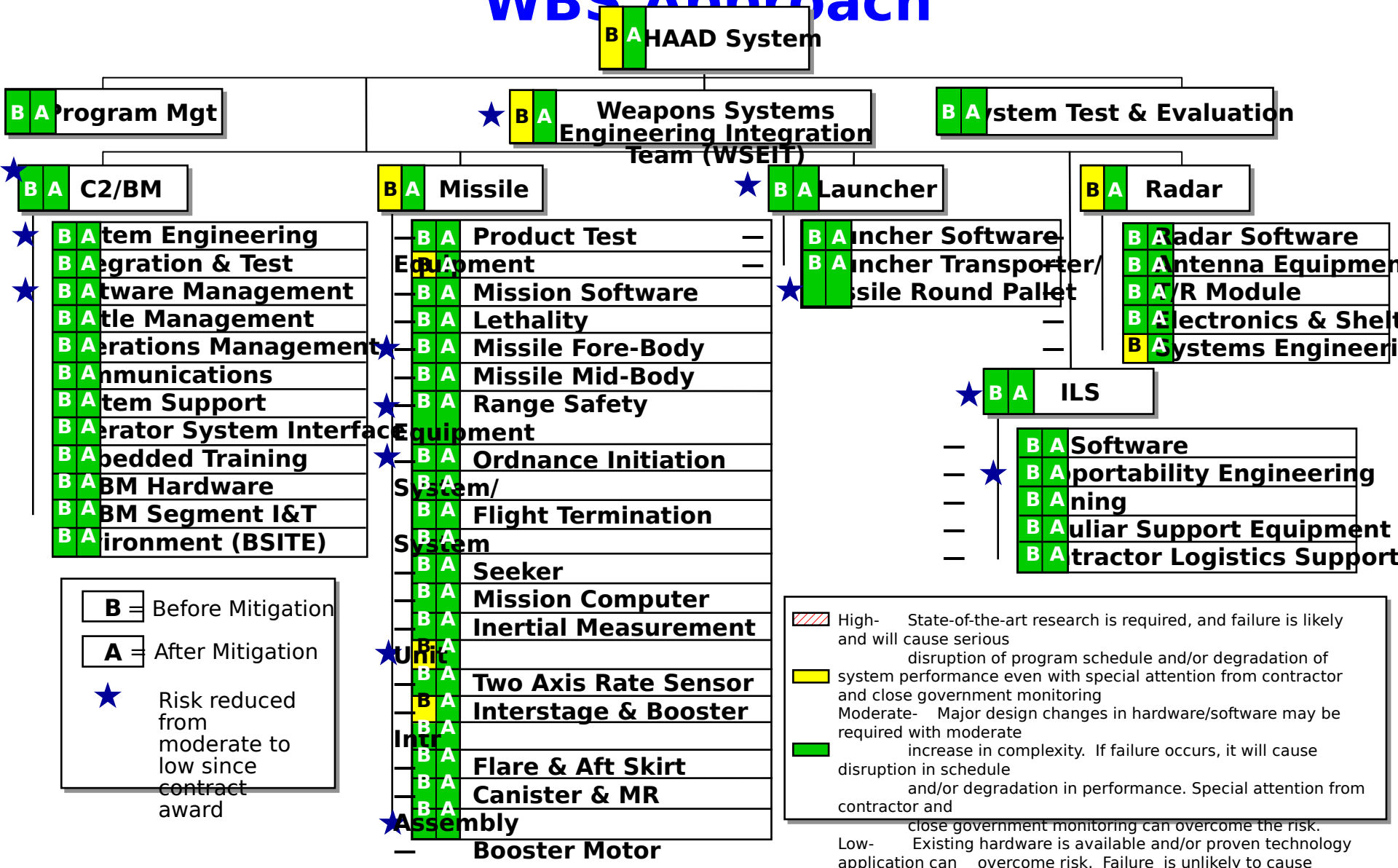
HIGH - Unacceptable. Major disruption likely. Different approach required. Priority management attention required.

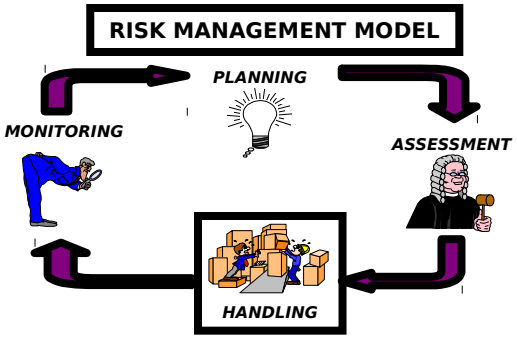
MODERATE - Some disruption. Different approach may be required. Additional management attention may be needed.

LOW - Minimum impact. Minimum oversight needed to ensure risk remains low.

THAAD Program Risk Assessment (U)

"WBS Approach"


B A THAAD System
B A Program Mgt
B A Weapons Systems Engineering Integration Team (WSEIT)
B A System Test & Evaluation
B A C2/BM
B A Missile
B A Launcher
B A Radar
B A tem Engineering
B A egration & Test
B A tware Management
B A tle Management
B A erations Management
B A nmunications
B A tem Support
B A erator System Interface
B A bedded Training
B A BM Hardware
B A BM Segment I&T
B A ironment (BSITE)
B A Product Test
Equipment
B A Mission Software
B A Lethality
B A Missile Fore-Body
B A Missile Mid-Body
B A Range Safety Equipment
B A Ordnance Initiation
System/
B A Flight Termination
System
B A Seeker
B A Mission Computer
B A Inertial Measurement Unit
B A Two Axis Rate Sensor
B A Interstage & Booster Intr
B A Flare & Aft Skirt
B A Canister & MR Assembly
Booster Motor
B A uncher Software
B A uncher Transporter/ ssile Round Pallet
B A Radar Software
B A Antenna Equipmen
B A T/R Module
B A Electronics & Shelt
B A Systems Engineeri
B A ILS
B A Software
B A portability Engineering
B A ning
B A uliar Support Equipment
B A tractor Logistics Support
B = Before Mitigation
A = After Mitigation
Risk reduced from moderate to low since contract award
High- State-of-the-art research is required, and failure is likely and will cause serious disruption of program schedule and/or degradation of system performance even with special attention from contractor and close government monitoring
Moderate- Major design changes in hardware/software may be required with moderate increase in complexity. If failure occurs, it will cause disruption in schedule and/or degradation in performance. Special attention from contractor and close government monitoring can overcome the risk.
Low- Existing hardware is available and/or proven technology application can overcome risk. Failure is unlikely to cause



RISK HANDLING

CAAT

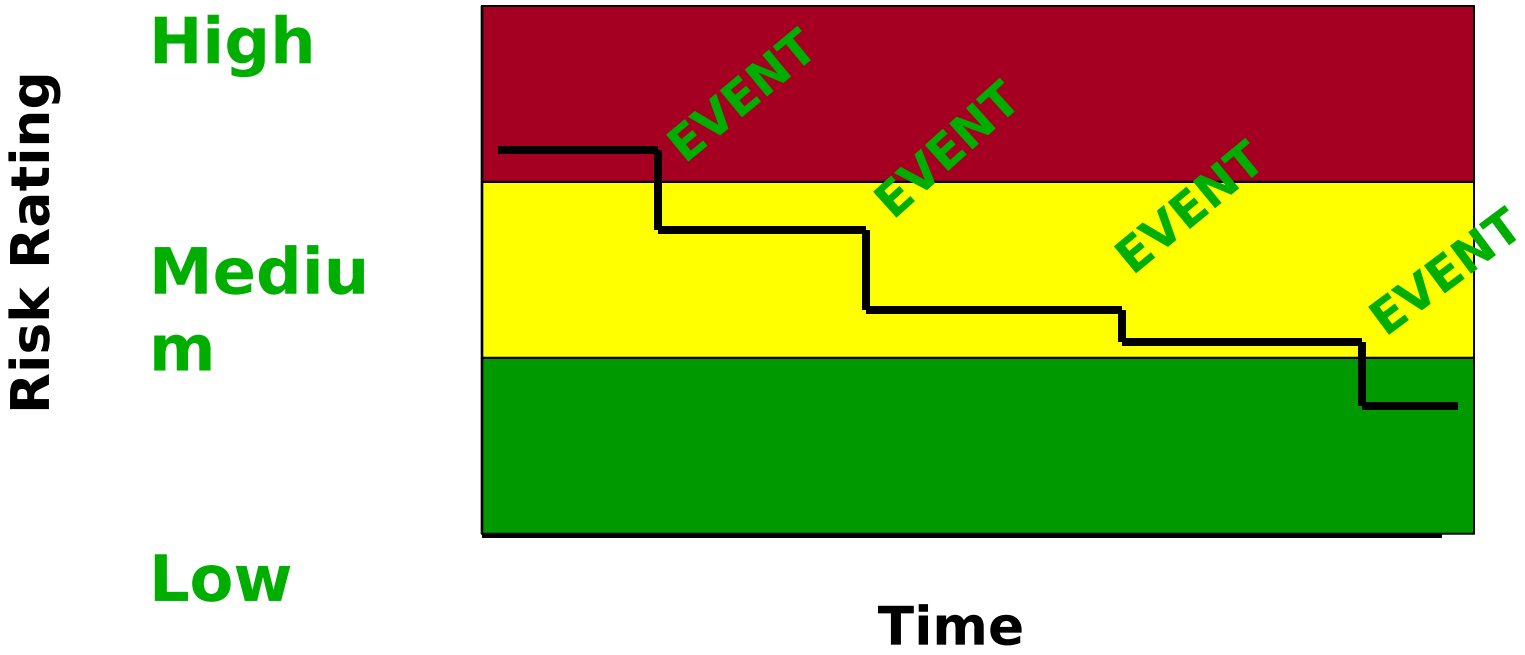
CONTROL: Reduce Probability &/or Impact (In-Process Reviews)

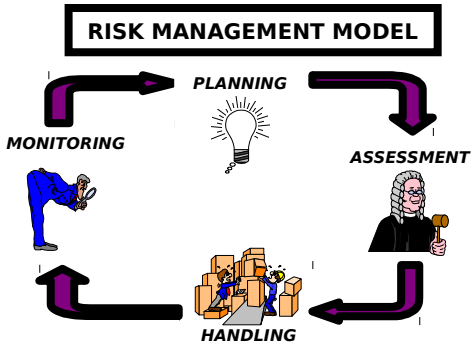
AVOID: Use Another Path
(Redesign, Eliminate Req, Change Schedule)

ASSUME: Make No Changes
(Mgmt/Risk Reserve = $ & Sch)

TRANSFER: Reduce Impact
(Warranties, FP Contracts, Insurance)

Risk Handling Plan
"Waterfall"





RISK MONITORING

- **Related to Earned Value Measurement & Program Control (Cost, Schedule, & Performance Measurement Reports)**
- **Track & Evaluate Handling/Mitigation of Risk Events**
- **Consolidated Acquisition Reporting System (CARS)**
  - **Acquisition Program Baseline (APB)**
  - **Defense Acquisition Executive Summary (DAES)/Unit Cost Reports (UCR)**
  - **Selected Acquisition Report (SAR)**

Risk Title: DACS DCS Thruster Redesign

LMMS ID No.: 631 **Missile Segment:** Missile

Risk Description:

Divert Control System (DCS) thruster design engineering testing indicated combustion instability. Risk is number of design iterations required to tune acoustical cavities for MON-25 DCS design.

Potential Impact:

Schedule and cost impacts associated with achieving technical requirements.

Risk Areas	Complexity Factor	Program Risk Rating	
Technology		MODERATE	
Design & Eng	7		
Performance	8		
Manufacturing			
Supportability		Overall CF	
Schedule	6	Original	Current
Cost	6	8.0	5.6

Mitigation Planning and Status

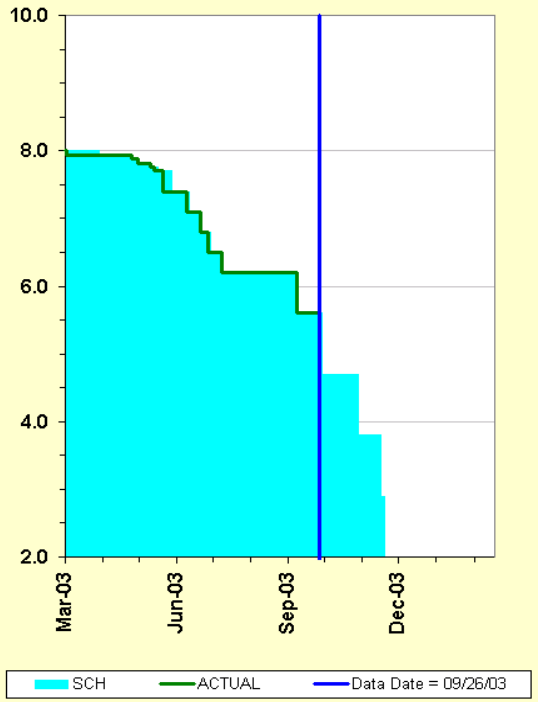
Step		Completion Dates Estimated	Actual	Step %
1	Begin fault tree analysis	03/30/03	03/02/03	1
2	Perform MON-10 to gain insight	04/25/03	04/25/03	1
3	Define cavity modifications	04/30/03	04/30/03	1
4	Modify injectors for retests	05/10/03	05/10/03	1
5	Develop test plan with various cavity sizes	05/17/03	05/13/03	1
6	Perform DCS test with 0.365 cavities	05/29/03	05/21/03	5
7	Perform DCS test with 0.400 cavities	06/12/03	06/09/03	5
8	0.400 Equivalent cavity test results review	06/20/03	06/20/03	5
9	Perform DCS test with 0.280 cavities	06/30/03	06/27/03	5
10	Investigate 0.400 equivalent cavity 27 kHz response	07/08/03	07/08/03	5
11a	Initial Large Open Area Bi/Tri-tuned testing	09/09/03	09/08/03	10
11b	Perform lower MON levels survey	09/30/03		15
11c	ACS look-a-like testing	10/30/03		15
11d	Center Core DCS testing	11/17/03		15
12	Execute backup plan, if required	11/20/03		15

Closure Criteria:

DACS prototype test demonstrates combustion stability

Retirement Justification:

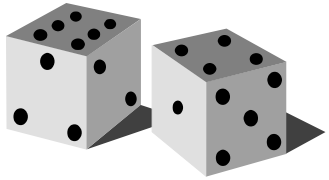
Risk Reduction Schedule



Responsible Risk POC: John Shoults - (408) 743-0949

RISK MANAGEMENT

SUMMARY



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WEB-BASED RISK MANAGEMENT

"TOOLS & WEBSITES"

- **Risk Management Guide June 2003**
  - www.dau.mil/pubs/gdbks/risk_management.asp

- **Risk Management Community of Practice**
  (PMCoP) – Part of Acquisition Community Connection (ACC)
  - http://acc.dau.mil

- **Textbook – "Managing Risk in Organizations" by J.Davidson Frame; published by Jossey-Bass, 2003**

- **Risk Management Learning Module**
  - http://clc.dau.mil/kc/no_login/portal.asp